

ABSTRACT

The invention provides generally a new type of organic electrochromic Near Infrared (NIR)-active materials capable of absorbing and attenuating the light in the NIR region around 1550 nm and forming thin films on electrodes for variable optical attenuator (VOA) applications. They have utility in planar VOA devices. The materials are ruthenium complexes. Unsymmetrical complexes having two different substituents are disclosed, where one substituent is more electron-donating than the other. Complexes which are dimers or trimers (symmetrical or unsymmetrical) are disclosed, as are polymeric complexes. Crosslinked polymeric complex films are also disclosed.